

The Formation of Massive Galaxies

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Massive elliptical galaxies mark the highest density regions of the Universe, and their environment must be an important factor in their evolution. How were these luminous galaxies formed? Submm and infrared observations have opened a new window on the process of dusty galaxy formation at high redshifts. We now understand that massive galaxies assembled near $z = 2.5$, on a timescale comparable to their star-formation, with luminous, dusty star-bursts emitting in the rest-frame far-IR wavelengths. However, our current facilities - Spitzer Space Telescope, and modern submm arrays - are just probing the tip of the ice-berg. I will discuss observational signatures of high-redshift forming galaxies possible with a post-Spitzer instrument operating at wavelengths longer than $20 \mu\text{m}$, both in the continuum and lines.